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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/760,336	01/20/2004	Dennis J. Klein	3780.002	9814

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EXAMINER

WILKINS III, HARRY D

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 12/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/760,336	Applicant(s) KLEIN ET AL.	
	Examiner Harry D. Wilkins, III	Art Unit 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,8,21-28 and 51 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21-28 is/are allowed.
- 6) ☒ Claim(s) 1-6,8 and 51 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 21 October 2005 has been entered.

Status

2. The rejection grounds based on Lin have been withdrawn in view of the amendment of the claims requiring flat electrodes.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rhodes (US 3,310,483) in view of Lin (US 5,614,069) and Lofffield et al (US 3,893,902).

Rhodes teaches the invention substantially as claimed. Rhodes teaches (see figures 1-4) an electrolyzer including an aqueous solution partially filling an electrolysis chamber, port means for adding solution to the chamber, two principal electrodes

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(anode and cathode) located at opposite ends of the electrolysis chamber and a plurality of supplemental electrodes in the solution interposed between the two principal electrodes and held in a fixed spatial relationship, wherein the supplemental electrodes were not connected to the power source.

Regarding the limitation that the combustible gas has a varying energy content depending on its use, this relates to the manner of operation of the claimed electrolyzer. It is well settled that the manner of operating a device does not differentiate apparatus claims from the prior art. See MPEP 2114. The electrolyzer of Rhodes has an identical structure and, thus, would have been capable of operating in the claimed manner.

Rhodes does not teach (1) one or more external fins serving as heat sinks and (2) the composition/shape of the electrodes.

Lin teaches (see figures 2, 3 and 6) adding external fins onto an electrolyzer for the purpose of improving heat transfer away from the electrolyte.

Therefore, it would have been obvious to one of ordinary skill in the art to have added external fins to the electrolyzer of Rhodes for the purpose of improving heat transfer away from the electrolyte.

Rhodes teaches (see col. 3, lines 24-27) using conventional plate electrodes known in the art.

Lofffield et al teach (see abstract and col. 6, lines 12-26) conventional electrodes for water electrolysis that are composed of stainless steel or nickel. Anodes are made as meshes and cathodes as solid plates.

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Therefore, it would have been obvious to one of ordinary skill in the art to have made the supplemental electrodes of Lofffield et al. to be alternatingly stainless steel "cathode" plates and nickel "anode" meshes because Lofffield et al. teach the use of plate and mesh electrodes made from stainless steel and nickel. With respect to the fact that the meshed electrodes result in a (+) and (-) current flow, such feature would have been expected by one of ordinary skill in the art when utilizing a mesh electrode.

Regarding claims 2-6 and 8, these claims are related to the gas produced by the claimed electrolyzer. Applicant is reminded that the patentability of apparatus claims is not dependent upon the manner of use. The structure taught by Rhodes meets the claimed structure. Hence, Rhodes meets the limitations of claims 2-6 and 8.

5. Claim 51 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rhodes (US 3,310,483) in view of Lin (US 5,614,069) and Lofffield et al (US 3,893,902) as applied to claim 1 above, and further in view of Wong et al (US 4,181,588).

The teachings of Rhodes are described above.

However, Rhodes was silent as to the spacing distance between adjacent electrodes.

The spacing distance between adjacent electrodes was a well-known result effective variable in the prior art as evidenced by Wong et al (see col. 5, lines 34-60). Therefore, it would have been obvious to one of ordinary skill in the art to have optimized the electrode spacing distance in order to maximize current efficiency in the electrolyzer.

Allowable Subject Matter

6. Claims 21-28 are allowed.

Response to Amendment

7. The declaration under 37 CFR 1.132 filed 21 October 2005 is insufficient to overcome the rejection of claims based upon the prior art as set forth in the last Office action because: the declaration does not show conclusive evidence that the claimed invention produces new and unexpected results.

Response to Arguments

8. Applicant's arguments with respect to claims 1 and 51 have been considered but are moot in view of the new ground(s) of rejection. However, the Examiner would like to reiterate one point that he has tried to make clear during prosecution. Apparatus claims are patentable only on the basis of their structure. The manner of operating a claimed structure cannot be given patentable weight beyond the mere fact that the prior art was capable of operating in the claimed fashion. See MPEP 2114. Unless Applicant can show a new gas is produced only with the claimed **structure**, and not with the **structure** of the prior art, the gas produced by the electrolyzer cannot be considered to lend patentable weight to these apparatus claims. If no differences result from the claimed structure can be shown, then it is suggested that claims directed to the process of making the gas be pursued in a divisional application. (It is noted by the Examiner that such divisional application has been filed (11/274,813), and examination will proceed with that application in due course.


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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D. Wilkins, III whose telephone number is 571-272-1251. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V. King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Harry D Wilkins, III
Examiner
Art Unit 1742

hdw